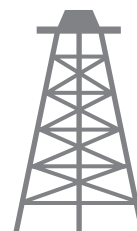




Pacific Petroleum Geology

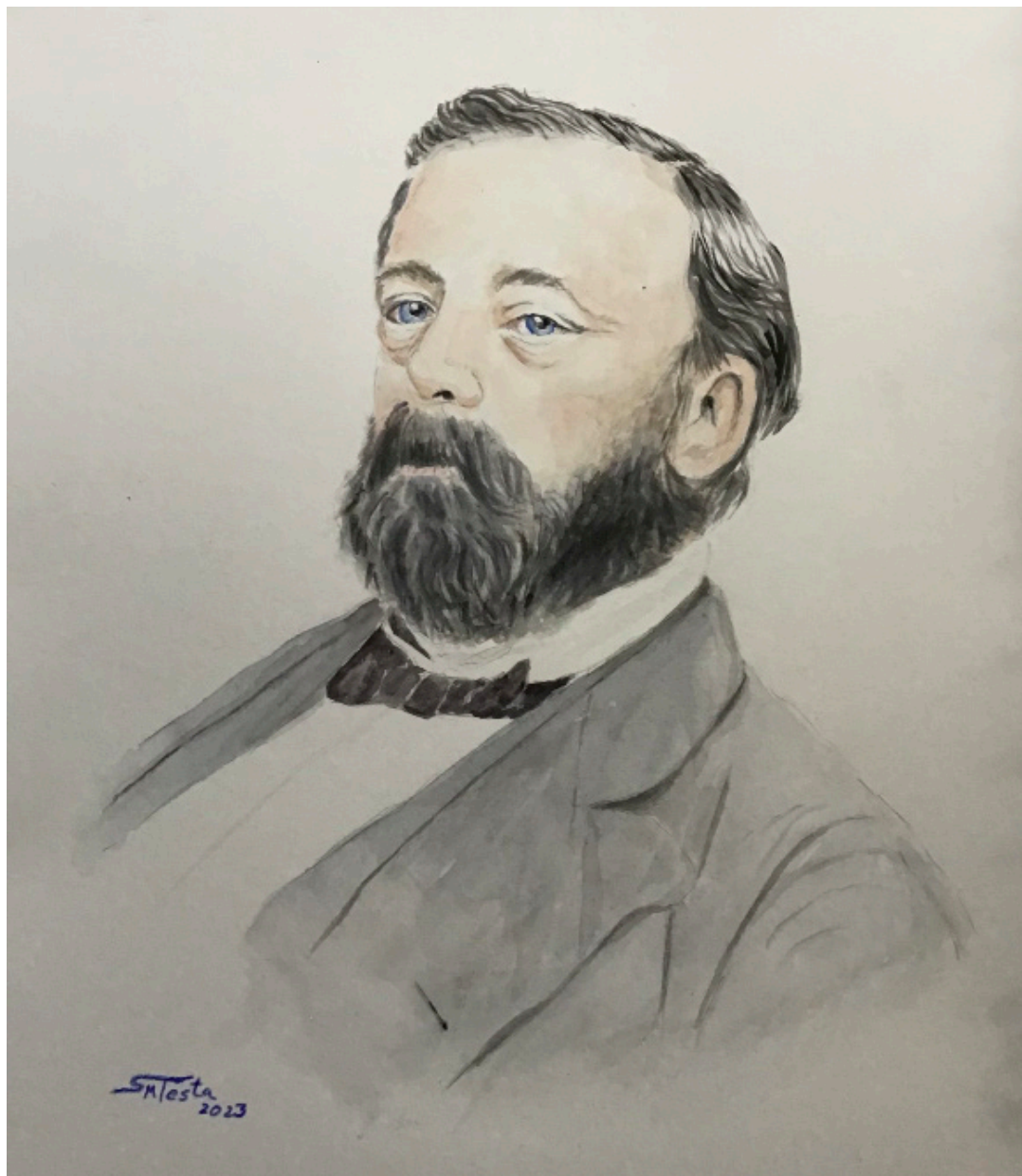


NEWSLETTER

Pacific Section • American Association of Petroleum Geologists

March-April 2023

Dr. Thomas Antisell



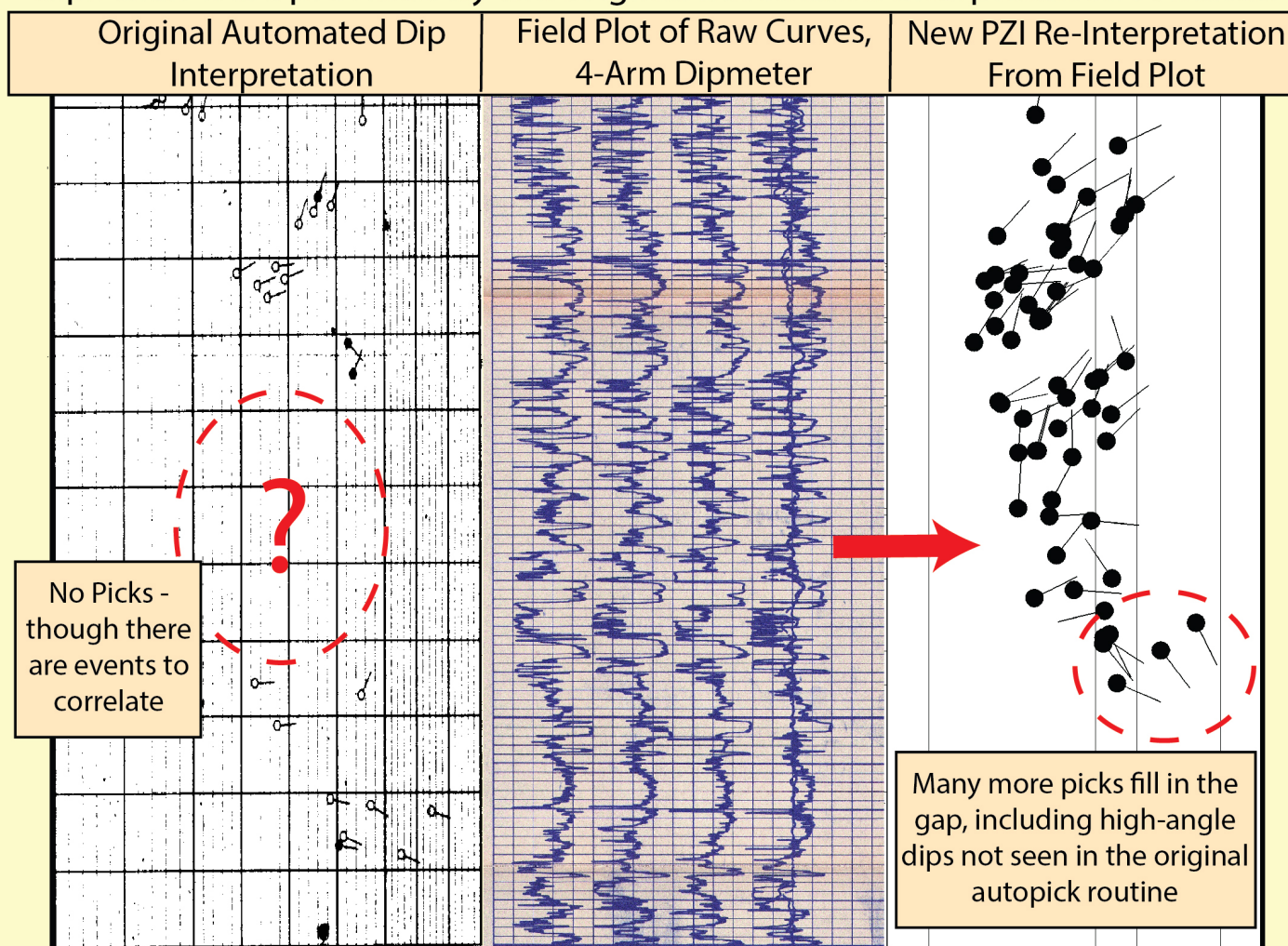
A Historical Sketch of a California Physician-Chemist-Geologist
by Stephen Testa

see page 11

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4 **President's Message** Plamen Ganev

6 **Carbon Management Symposium, April 21, 2023** CSUB

7 **Ridge Basin Field Trip, May 12, 2023** PS AAPG

8 **SPA's Final Meeting** SPA

9 **SCA Mapping Course, May 22-26** Hosted by Berry Petroleum

10 **CSUB Honors Dr. Jan Gillespie** CSUB *Campus News*

11 **Dr. Thomas Antisell: A Historical Sketch** Stephen Testa

28 **Chuck McCollough** Bakersfield *Californian*

32 **Member Society News**

Cover Image: Watercolor portrait of Dr. Thomas Antisell from a Carte de visite (CdV) dated 1866 (painting by Stephen Testa). Antisell was one of the first geologists to note that petroleum seeps in Central and Southern California could indicate an fuel source for future railroads.

Submit an Article to the Pacific Petroleum Newsletter!

- CONTACT THE EDITOR at editor@PSAAPG.org
- Images (graphics, photos, and scans) must be at least 300 dpi resolution. Text should be at least 600 dpi.
- Scanned photos, illustrations (line art) or logos should preferably be submitted as a .tif, .gif, or .bmp; .jpeg

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Dear fellow PS-AAPG members,

Thank you for stopping by and reading my column and this newsletter. In the recent survey we conducted, it was clear that the newsletter is something you look forward to open and read. We are, therefore, committed to continue to provide you with the latest and most relevant information about the PS-AAPG and its members. To this end, I am truly grateful for our Editor-in-Chief Tony Reid, who continues to unconditionally volunteer his time to make the newsletter a reality!

This month I would like to reflect on some of the latest trends that are unfolding in the industries where our members practice their geological skills, as well as provide an update on a specific Section matter as a sign of our changing times.



For those of you that are directly or indirectly involved in the Oil and Gas industry, you are probably aware that only a few weeks ago the first full-scale post-pandemic CERA Week took place in Houston. The event did not disappoint as it brought together key government agency representatives, many O&G CEOs and their executive teams, and other key figures that broadly service and operate in the energy sector. The discussed topics were broad and deep, but the focus was clearly on energy security, affordability, and sustainability. The energy trilemma, as it is now colloquially known, was on everyone's mind and as you can imagine there were some great debates about the appropriate prioritization.

While no major decisions come out of such an event, the discussions are very relevant as the energy transition continues to gain speed in the Pacific Section's regions. As the Department of Energy has made some major funding available through the Inflation Reduction Act (IRA) across multiple energy transition pathways, some CA-based operators are already taking advantage of these programs, and we have now seen proposals for a Carbon Capture and Storage hub, as well as a Direct Air Capture hub in the Golden State. As one may expect, the Oil and Gas operators are best positioned to take advantage of these opportunities, and the technical skills of our PS-AAPG members will continue to be in high demand as these new technologies and solutions are being developed.

Speaking of new solutions, I am proud to announce that the Pacific Section is going to partner in the month of April with California State University Bakersfield in holding a technical session focused on Carbon Capture, Utilization, and Sequestration (CCUS) [link: <https://www.csub.edu/cerc/carbon-sequestration-symposium>]. A small group of our members will gather in a working session to discuss the current challenges and opportunities for CCUS as related to the safe and reliable drilling of Class VI carbon injection wells, as well as the permanent storage of carbon in depleted reservoirs and/or aquifers. This working session, along with the rest of the Symposium organized by CSUB will be available to access for free online through the Symposium's web site. In conjunction with this event,

the Pacific Section is also going to conduct a 1-day fieldtrip on May 12 led by Daniel Schwartz, PhD, where those who sign up will have the chance to explore the reservoir and seal characteristics necessary for successful CO₂ injection and storage. So, please be on the lookout for the fieldtrip announcement over the next few weeks.

As I mentioned earlier in my opening statement, I would also like to provide an update regarding one of the Pacific Section's associated societies. The Sacramento Petroleum Association, which is one of our 7 associated societies, has made the hard decision to cease their existence. I know that such a decision is not easy to make, and I appreciate all the efforts that the Society's leadership team and members have put into keeping the operations going. While some may choose to attribute this event to factors outside of our control, I firmly believe that it is a signal of the changing times we are living in. The needs of our members, and the members of our associated societies, are evolving and it is imperative for us to evolve the services and value we offer as the Pacific Section.

We are here to embrace the change that the Energy Transition is bringing, and we are here to enable our members to be the problem solvers and solution providers to the energy trilemma (energy security, affordability, and sustainability). If you would like to get involved and be part of this journey with us, please do not hesitate to reach out and get involved!

Best,

Plamen

New Pacific Section AAPG Publication

Advances in the Geology of the Sacramento and Northern San Joaquin Basins since PSAAPG Miscellaneous Publications 41 and 43

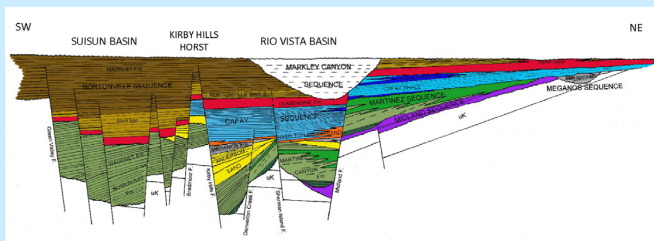
Available by direct download from the
PS AAPG web site, or in CD form. In
either form, the price is \$45.

To purchase, contact the PS AAPG
Publisher at Pacific Section AAPG,
Publications Chair, P.O. Box 1072,
Bakersfield, CA, 93302, or contact Larry
Knauer at laknauer@aol.com.

Advances in the Geology of the Sacramento and Northern San Joaquin Basins

since PSAAPG Miscellaneous Publications 41 and 43

Volume 1



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December 2020



CALIFORNIA ENERGY
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SAVE THE DATE

CARBON MANAGEMENT TECHNICAL SYMPOSIUM

APRIL 21, 2023

Hosted at California State University, Bakersfield

A groundbreaking technical symposium
allowing stakeholders and experts to engage in a scientific
discussion on the current state of carbon management
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In-person attendance by invitation-only
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Registration and more information coming soon. For questions, please contact
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**Registration free of charge*

***Sponsors for this event include the Pacific Section AAPG
and the Pacific Section AAPG Foundation***

Save the Date!

Pacific Section AAPG

**Ridge Basin Field Trip: Lessons for Carbon Capture
Friday May 12, 2023**

Please join us as we examine exposures of the Ridge Basin while discussing geologic characteristics necessary for successful carbon capture projects

The Ridge Basin contains Miocene-Pliocene age outcrops with many features common to other California basins where carbon capture projects are, or may be, proposed. Features include progradational sandstones that represent reservoir and expansion units, and thick shaly seals that represent containment layers. In some locations complex structural deformation can be observed.

Don't miss this opportunity to have a great day in the field with our trip leader, Dr. Daniel Schwartz

**Additional trip details, including
registration information, will be on the
PSAAPG website in April**

IN HONOR OF ALL OF PAST
MEMBERS SPA WILL HOST A


GOODBYE LUNCHEON

Wednesday, April 19th
Noon

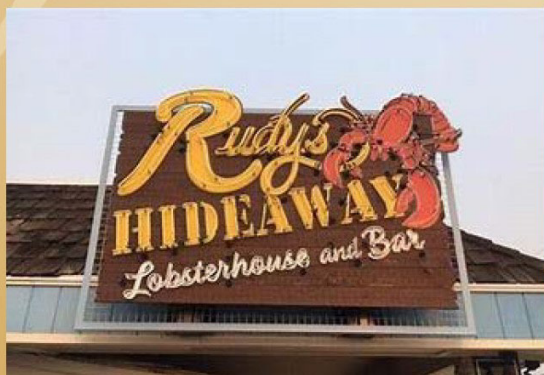
 It is **VERY IMPORTANT** to **RSVP** for this event.

Please respond **before April 15th!** klopez@gasbiz.com or
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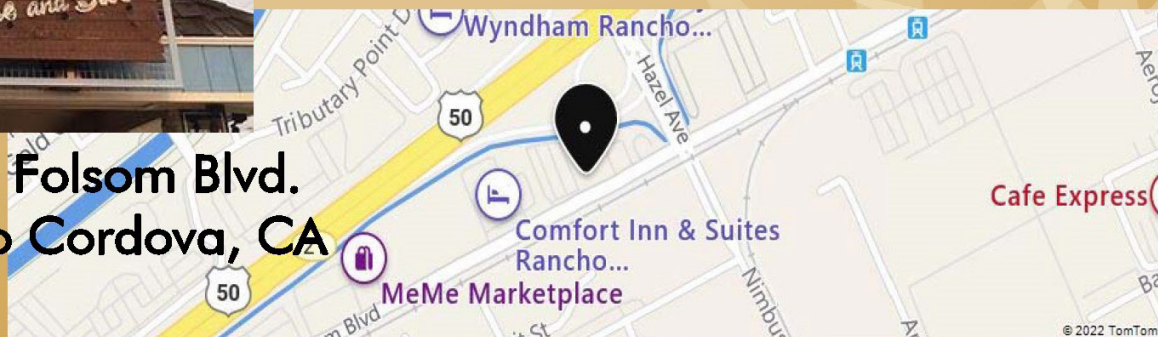
Everyone (members and guests) who plan to attend needs to
RSVP with a menu selection,

- 1) prime rib dip sandwich
 - 2) vegetarian pasta Primavera; or
 - 3) bay shrimp or crispy chicken Cesar salad
- 

We also would like to include anyone's goodbye message so please send to: pc626@comcast.net or perhaps save it to present in person at the luncheon. We welcome memories be shared during the luncheon festivities. Hope to see you there!

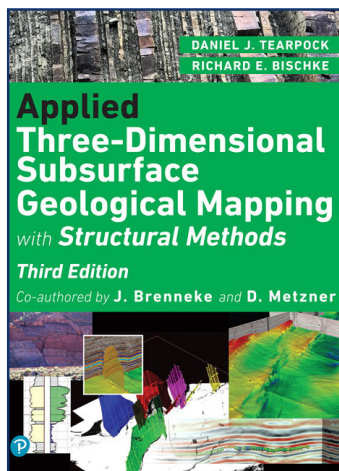


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APPLIED SUBSURFACE GEOLOGICAL MAPPING



ABOUT OUR FLAGSHIP COURSE:

Developed and authored by SCA's Founder, Daniel J. Tearpock, our flagship course and associated textbook provide students with critical skills that are essential to successful oil finding. Students will receive the *Applied 3D Subsurface Geological Mapping with Structural Methods 3rd Edition (2020)* textbook and a lab manual with exercises.

This course provides the applied, hands-on knowledge required to generate sound subsurface geologic maps which are the most important and widely used documents in petroleum exploration and development. Geoscientists and engineers are expected to understand and be able to efficiently and accurately generate many types of subsurface maps. Nevertheless, many geoscientists have not had sufficient formal training in the fundamental principles and methods that underlie accurately constructed subsurface maps, whether the data source is a seismic interpretation, well log correlation, or both.

From the newly graduated geoscientist or engineer to the seasoned professional, this course covers fundamental and advanced methods of subsurface mapping.



Robert Shoup

INSTRUCTOR:

Robert 'Bob' Shoup is the Chief Geologist for Subsurface Consulting & Associates LLC (SCA) and the Director for Clastic Reservoir Systems. He is a Board Certified Petroleum Geologist with over 40 years' experience in basin analysis, regional studies, new play generation, and prospect evaluation.

Bob began his career at Shell Oil in 1980. His 19 years with Shell were followed by four years working for private oil companies before becoming an independent consultant in 2003. A recognized expert in clastic depositional environments, rift basins, and syndepositional structural systems, Bob is a proven oil finder with a 46% exploration commercial success rate and over 135 MMBOE discovered resources.

COURSE CONTENT:

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- Contouring techniques
- Directionally drilled wells and directional surveys (applications to mapping)
- Log correlation techniques for vertical and deviated wells (applications to mapping)
- Structure mapping and cross section construction for extensional, compressional, strike-slip and diapiric tectonic settings
- Fault surface mapping using well log/seismic data
- Integration of geophysical data in subsurface mapping
- Isochore map construction (bottom water and edge water reservoirs)
- Net sand and pay correction factors for directionally drilled wells
- Structure vs porosity top mapping
- Walking wells; fault wedge mapping
- Pitfalls of computer generated maps
- Volumetric calculations

Hosted By: Berry Corporation
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Course Date:
May 22-26, 2023

Private, In-House sessions of this course may be scheduled according to instructor availability. For more information, please contact SCA's Training Department at (713)789-2444 or training@scacompanies.com.

CSUB Honors Dr. Jan Gillespie as a 2023 Faculty Hall of Fame Recipient

from the CSUB Campus News, March 17, 2023

Family, peers and friends of four iconic California State University, Bakersfield professors gathered in the Dezember Reading Room at the university's Walter Stiern Library Thursday afternoon to honor those academic leader's legacies and commitment to students.

Dr. Beth Rienzi, James "Jim" Segesta, Dr. Mark Evans and Dr. Jan Gillespie were inducted into the CSUB Faculty Hall of Fame during the luncheon ceremony that recognized their history of scholarship, research, and service to the university.

CSUB Provost and Vice President for Academic Affairs Dr. Vernon Harper said the powerful work these educators did was tied to the very core of what CSUB does for its students.



Jan with Dr. Tony Rathburn and CSUB Provost and Vice President for Academic Affairs Dr. Vernon Harper

Dr. Jan Gillespie served as a mentor and role model for women in the fields of science, technology, engineering and mathematics during her 28-year career at CSUB. She helped create the university's first dual-credit program in geology, which was very successful and led other departments to adopt their own dual-credit programs.

Dr. Gillespie established herself as an expert in water quality in the Central Valley through her work as a researcher. In addition to her role at CSUB, she began working with the United States Geological Survey in 2015 as a senior research scientist. She helped create a 3-D map of subsurface aquifers in the Central Valley and throughout the state. Dr. Gillespie also analyzed geological data to determine the impact of oil and gas development on the state's groundwater resources. Through her dual roles, she was able to arrange for CSUB students to visit the USGS for field trips.

Dr. Gillespie has earned several awards, including the Distinguished Educator Award from the Pacific Section of the American Association of Petroleum Geologists and the Millie Amblin Outstanding Professor Award.

As an emeritus professor, Dr. Gillespie continues to stay connected to the Geology Department, including arranging for student field experiences, serving as an adviser for the department and helping to coordinate student and graduate opportunities at the USGS.

"Jan Gillespie is a pioneer educator and scholar whose 28-year career at CSUB left lasting, positive impacts on student education and the University's research reputation," said Dr. Gillespie's nominator, professor and chair of the Geology Department Anthony Rathburn.

Dr. Thomas Antisell – A Historical Sketch of a California Physician-Chemist-Geologist

Stephen M. Testa
Testa Environmental Corporation
stesta@goldrush.com

Introduction

As California geologists, we know of Dr. Thomas Antisell's work from when he served as the geologist under Lt. Parke with the Pacific Railroad Survey. During the Early Reconnaissance Period (1849-1864), several geological reconnaissance and surveys were conducted throughout California (Testa, 2001). These early reconnaissances included those conducted by Philip T. Tyson (1799-1877), and California's first State Geologist - John Boardman Trask (1823(4)-1879). By the time the Pacific Railroad Survey made it to California, the state was introduced to John Strong Newberry (1822-1892) who covered the northern portion of the State, and William Phipps Blake (1826-1910) and Dr. Thomas Antisell (1817-1893) who covered portions of southern California. The Early Reconnaissance Period would conclude with those individuals associated with the first California Geological Survey under Josiah Dwight Whitney (1819-1896). Newberry, after his work with the survey in northern California, would go on to become State Geologist of Ohio, work under the United States Geological Survey and become Professor of Geology at Columbia University School of Mines. Blake's prestigious career would take him to Japan and Russia, and eventually served as the second Territorial Geologist of Arizona. Much has been written about these individuals but little has been said about Antisell, with even less known of his background prior to California, his work in California, and the years following his work with the Pacific Railroad Survey.

Antisell joins a long list of practicing geologists from the United Kingdom (Sakula, 1990; Duffin et al., 2011) and early America, notably during the 19th Century, that came out of the medical profession. Antisell shared this distinction with no less than 96 individuals for the United States, with a medical background (Browning, 1919). Newberry, for example, graduated from the Cleveland Medical

School in 1848 and had a successful medical practice in Cleveland, Ohio. Later, in 1861 elected a member of the United States Sanitary Commission. Trask, not included in Browning's 1929 paper, was enrolled in Yale's Medical School for one year (1846-1847), writing his dissertation on scrofula, a tubercular infection of the lymph nodes of the neck, and served as a physician during the early days of the Civil War (Leviton and Aldrich, 1982). As for Antisell, although most of his professional endeavors would be in the areas of medicine and chemistry, his diverse interests, and contributions to geology in his native Ireland and California is of historical interest and significance (Figure 1).

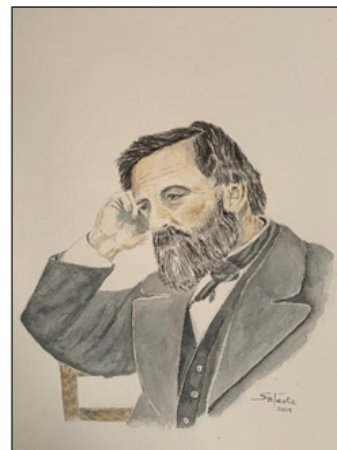


Figure 1. A portrait of Dr. Antisell as a studious, professional man with side whiskers, pointed beard and mustache, from an undated image (1a) and watercolor painted by the author (1b).

Family Ancestry, Education and Politics

We know of Antisell's background, education and politics from brief biographies written by members of the medical community (Lamb, 1920; Browne, 1938; Miles, 1968; McCabe, 2009). Antisell, being of French Huguenot ancestry, was born in Dublin, Ireland, on January 16, 1817. The son of Thomas Christopher Antisell of King County, Ireland, his father was a barrister and Queen's Counsellor, with ancestry going back to Sir Bertine Entwysse who accompanied Henry II to Ireland. Antisell studied at what was considered the best schools in Ireland, England and Germany, pursuing chemical studies in Paris and Berlin under some of the most celebrated chemists of the times including Pelouze, Biot, Dumas and Berzelius.

His special study was chemistry but he attained a thorough medical education at Trinity College in Dublin, and the Dublin School of Medicine (where he also held a position of lecturer of chemistry), Peter Street School of Medicine, and the Irish Apothecary's Hall. Graduating from the London Royal College of Surgeons in November of 1839, he would serve as an assistant to Sir Robert Kane from 1839 to 1843. Kane was no lightweight. At the age of 22 Kane was appointed Professor of Chemistry at the Apothecary Hall which earned him the moniker of the "boy professor". A year later Kane participated in the establishment of the Dublin Journal of Medical Science; became a political advisor on scientific and industrial matters during the great famine of Ireland; and eventually became the first President of Queen's College in 1845.

Antisell became a member of the Royal Dublin Society in 1844. Upon his return to Dublin in 1845, he secured a lectureship in botany at the Peter Street School of Medicine, teaching there until 1848. After this, he opened a clinic at his residence of 25 Richmond Street, Portobello.

Antisell's initial professional endeavors in the field of geology occurred in the 1840s. With a deep interest in agriculture, he published a "*Manual of Agricultural Chemistry with its Applications to the Soils of Ireland*" (1845), "*Irish Geology*" (1847) and "*Sanitary Improvement of the City of Dublin*" (1847). There is a suggestion based on Antisell's geological writings in

his outlines of Irish geology that he was a confirmed uniformitarian (Aalto, 2022).

As a young man, Antisell joined the Young Ireland movement and joined the Irish Confederation in 1847, which was comprised of men and women considered highly intelligent, visionary, and courageous (Higgins, 2019). Unfortunately for Ireland, their vision of a sovereign, inclusive and progressive homeland was extinguished by either the hangman's rope, firing squads, prison, or exile. The term "*Young Ireland*" was coined by Daniel O'Connell, the leader of the Repeal Association, and was an attempt to marginalize and control his young distracters within the association by implying that they lacked experience and credibility. With a group of five friends in the republican movement, Antisell in June 1848 set up a short-lived revolutionary newspaper, *The Irish Tribune*. The paper after just five issues was shut down on the grounds of sedition in July 1848. As a member of the "*Young Ireland Party*" Antisell was sentenced to exile and imprisonment. He fortunately escaped penalty through a friend who procured him a position as surgeon on an outgoing vessel for America.

From American Physician to Geologist

At the age of 31 he landed in New York on November 22, 1848 (Lamb, 1920). Upon his arrival, he initially practiced medicine in New York City and continued there until 1854. However, during this period he quickly involved himself with civic affairs delivering a series of addresses on "*The Philosophy of Manufactures*" at the Castle Garden in October 1849, and compiled in 1852 a 690-page handbook "*Handbook of the Useful Arts*" (Browne, 1938; Figure 2).

In 1854, his wanderlust got the best of him and he dropped his medical practice. This temporary turn-of-events was caused when he accepted a position through his friend John Torrey (1796-1873). Torrey was a celebrated American-born botanist, chemist and physician. Antisell was an unusual choice for geologist for the Pacific Railroad Survey but the support of John Torrey at Princeton was influential in gaining him the position (Kues, 2008). The position Antisell accepted was as a geologist under Topographical Engineer Lieutenant Parke with the Pacific Railroad Survey along the thirty-second



Figure 2. Antisell's most popular publication for the general public was his 690 page "*Hand-book of the Useful Art*" published in 1852 (Source: Courtesy of Testa Geological Heritage Library, Mokelumne Hill, California).

parallel. Antisell would be one of six geologists that accompanied the various expeditions associated with the Pacific Railroad Surveys, and the only geological investigation to be conducted by him as geologist in the United States. Parke had recently completed a reconnaissance of southern California with William Phipps Blake as geologist which ended in December of 1853. Antisell would be the geologist for the geological reconnaissance of the "Coastal Range" of Southern California and then continue to the Arizona Territory. His report would be published in the seventh volume of the "*United States Reports of Explorations and Surveys*," (Antisell, 1856). This survey departed Benicia on November 22, 1854, and continued to April 5, 1855, and would traverse five counties covering almost the entire shoreline of southern California: Santa Cruz, Monterey, San Luis Obispo, Santa Barbara and Los Angeles.

Where Newberry opined that the Coast Range in Oregon and California formed a single chain similar to that of the Sierras and the Cascades, Antisell was not satisfied with the term "Coast Range" feeling that the term should be obliterated (Antisell, 1856, p. 15). For example, no less than four ranges exist between Point Pinos in Monterey to Point Conception in Santa Barbara County alone, noting that: "*There is no single range of hills which in its whole extent can be termed the Coast Range in these counties.*" Furthermore, on page 17 of his report he noted "*The Sierras Monica and Susanna, which ought scarcely be classed as coast mountains, lie almost due east and west.*"

Antisell studied the famous New Almaden quicksilver mines. Under American control at the time of his studies, his observations extended beyond geology, and described in no uncertain terms the harsh conditions and exploitation of both natural and human resources, and the adverse health effects from mercury poisoning from the processes employed noting (Antisell, 1856, p. 35):

"Producing waste of ore and ill health among the furnace men, with whom salivation is no uncommon occurrence, followed by trembling and occasionally total paralysis, and in one case insanity."

Merrill (1924, pp. 311-312) noted Antisell's recognition of "*the post-Miocene of the final uplift of the Coast Range*". Based on elevation of the Coast Ranges, Antisell erroneously postulated that "*the Pacific Ocean must have stretched inland over the Great Basin and Desert, and washed the base of the Wasatch, or even of the Rocky mountains.*" This contrasted with Blake who observed a series of secondary inundations, with huge alluvial fans and evidence of ancient beaches, not sure whether the present conditions were a result of oceanic action of subsequent aqueous modifications. Blake further postulated that the Great Basin was maybe all that remained of a great arm of the sea that extended from the vicinity of the Gulf of California. It would be Grove Karl Gilbert in his USGS Monograph No. 2 simply titled *Lake Bonneville* (Gilbert, 1890), published in 1890, that some of these questions would be answered.

Antisell was skeptical of water as a large-scale erosion force. This is evident by his thoughts regarding the Klamath, Columbia, Gila and Humboldt Rivers of the west *“a great depression or chasm across the strike of these ranges by the exertion of volcanic forces acting after they were elevated”* (Antisell, 1856, p. 16). He failed or at best did not appreciate the full erosional power of water (Merrill, 1924, p. 312; Goetzmann, 1959). As for the Gila River, he could not abandon a catastrophic process in lieu of water as a significant erosional force stating *“It is difficult to imagine that the river could have formed this course for itself by wearing its passage silently for ages through this overflow; it would rather by some other cause, which the river now occupies”* (Antisell, 1856, p. 134).

Antisell recognized the post-Miocene age of the final uplift of the Coast Range. The extent of Neogene uplift of the Coast Ranges and the Pleistocene lakes in the Mojave Desert region was also recognized based on elevated shorelines and orogenic activity by recent volcanism and earthquake activity. He attributed uplift of the Coast Ranges to *“the elevating force that must have taken place from two points, one in the north and one in the south...”* and that the forces became gradually spent as they passed, one in a southerly and the other in a northerly direction toward each other (Antisell, 1856, p. 20), producing a rupture of the superficial strata, and a depression of the land below sea level in the vicinity of San Francisco.

A comparison with the views of Antisell, Blake and the French geologist Jules Marcou via their detailed topographically-controlled maps and cross-sections prepared by each was made by Aalto (2017; 2022). Blake was the first professional geologist to survey southern California; whereas, Marcou was the first professional geologist to conduct a survey across the North American continent. The Rocky Mountains were viewed by Blake as previously deformed islands along the course of the Rocky Mountain chain in the great Carboniferous sea which covered the continent, and the Triassic to Cretaceous deposits being laid down around them (Blake, 1860). As for Marcou, he postulated that the entire uplift was simply a result of a single orogeny, with multiple centers of upheaval and igneous intrusions (Marcou, 1855).

These men produced some of the earliest geologic accounts, maps and cross sections for the region, for which surveying parties assessing right-of-way grades provided a fair amount of topographic control. They also produced a regional stratigraphy, chiefly lithology-based but with some biostratigraphic control for Cenozoic map units.

Antisell during his geological reconnaissance singled out for special comment 13 areas where petroleum seepages were observed (Table 1), of which several would become prominent oil fields (Antisell, 1856, p. 107):

Table 1 Summary of Oil Seepage Locations Described by Antisell (1856)				
Antisell's Description and Location			Present Day Location	
No.	Oil Seepage	Location Description	Location	Oil Field
1	Santa Cruz Mountains, southeast spur	<i>“banks of the Arroyo La Brae and Pescadero”</i>	Santa Clara County/San Benito County	Near La Honda
2	San Luis Obispo valley	<i>“about four miles southwest of the village of San Luis Obispo”</i>	San Luis Obispo County	Near Lopez Canyon and Arroyo Grande
3	Napoma ranche	Napoma ranch	Santa Barbara County	Near numerous fields south of present-day Santa Maria including the Cat Canyon and Orcutt oil fields

Table 1 (Continued)				
Summary of Oil Seepage Locations Described by Antisell (1856)				
Antisell's Description and Location			Present Day Location	
No.	Oil Seepage	Location Description	Location	Oil Field
4	La Purissima	<i>"in the low ranges which divides the valley of La Purissima from that of Santa Inez"</i>	Santa Barbara County	Lompoc oil field
5	Santa Barbara	<i>"lying six miles west of the town of Santa Barbara"</i>	Santa Barbara County	Elwood oil field
6	Rincon and San Buenaventura, Santa Barbara	<i>"Rincon, and the mouth of San Buenaventura river"</i>	Ventura County	Rincon oil field
7	Buenaventura river	<i>"12 miles above the mission, along the left bank of the river"</i>	Ventura County	Near Ojai and Ventura oil fields along the Ventura River flowing from Ojai.
8	Santa Clara river	<i>"The small stream which rises in the low ranges between the Buenaventura and Santa Clara rivers, and finds its way down to the latter stream, about 12 miles up the valley, received the provisional name of Tar creek, from its passing through a small valley in which several very extensive outpourings of the bitumen were observed"</i>	Santa Barbara County	Near South Mountain and Saticoy oil fields; possibly Sespe oil field.
9	Sierra Susanna	<i>"along the Santa Clara river, about 8 miles up the valley; it occurs in one of the ranges of the Sierra Susanna...other deposits occurring more easterly along the chain of hills which run toward the Cordilleran"</i>	Los Angeles County	Newhall oil field; several fields are also evident in the vicinity of the Aliso Canyon oil field
10	Los Angeles valley	<i>"one or two miles north of the pueblo in an air-line, but as the low range of the Sierra Monica, in which it is found, runs east and west, the road winds round northward to reach it"</i>	Los Angeles County	Los Angeles City and Salt Lake oil fields
11	San Pedro hills	<i>"south of Los Angeles valley... similar to those found further north in the Monica hills....leaks out in small quantity as at Rincon and San Buenaventura rivers; no actual deposit has been met with as yet upon these hills."</i>	Los Angeles County	Wilmington oil field
12	San Juan Capistrano	<i>"It is taken for granted on mere report, as no observation was made; it is said to occur a few miles inland above the mission in considerable amount."</i>	Orange County	
13	San Diego	<i>"on the seashore, washed up by the tide"</i>	San Diego County	

The geologic map that accompanied his report (Figure 3) indicated for the first-time deposits of bitumen, or oil, in California. Antisell also generated 47 cross-sections, five illustrations two colored cross-sections, and one colored map, to supplement his report to suggest geologic phenomena, stratigraphic relationships, and structure (Figure 4).

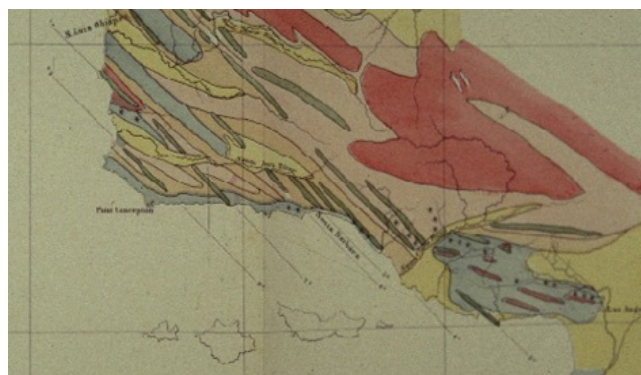
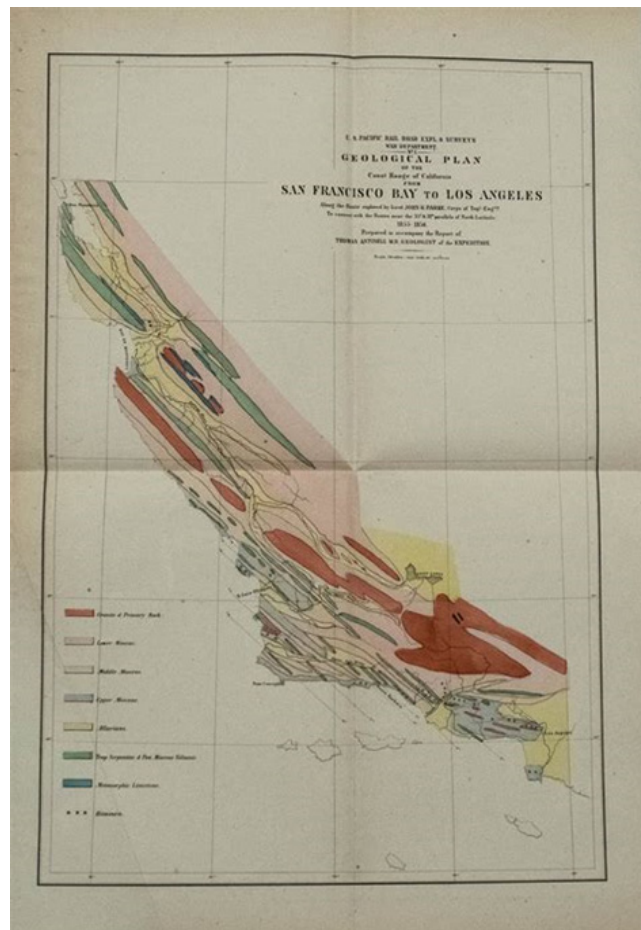


Figure 3. Antisell map of California being the first to show the preponderance of Miocene age rocks in the Coast Range south of San Francisco, and most of the major locations of “bituminous effusions” in the Coast Range. Rock types referenced in legend are Granite and primary rock (red); Lower Miocene (pink); Middle Miocene (yellow); Upper Miocene (pale blue); Alluvium (yellow); Alluvium (yellow); Trap Serpentine & Post Miocene Volcanics (gray blue); and Metamorphic Limestone (blue, Bitumen (asterisk).

The potential importance of oil as locomotive fuel in California which was substantially deficient in major coal resources could be understated. It was thus important for geologists associated with the expeditions, notably military, to describe such resources in detail. Antisell’s work was a systematic attempt to describe and map the various locations of all the seeps within his region of study, with specific attention to the Santa Barbara and Los Angeles areas where such voluminous accumulations allowed volumetric assessments. In the Los Angeles valley, Antisell (1856, p. 112):

“The asphalt is protruded through these strata near its contact with argillite, forming distinct wells or springs, which overflow. The land where they lie is owned by Captain Dryden, who, at the time of visit, was sinking a pumping apparatus for hoisting up the bitumen, which is very liquid at this locality, where it forms a small pond a fourth of a mile in circumference, thinner in the centre than at the edges”

Crowder (1961, p. 68) notes in 1857, two years prior to the Drake well and the same year as the Canadian Enniskillen development, what was known as the Dryden Well was producing a considerable amount of heavy oil for several years. Antisell further wrote in Chapter XVI titled *Bituminous Effusions*:

“Bitumen is “par excellence” the mineral of southern California, being found in almost every county south of San Francisco... It is remarked of most of these deposits that they are situated close to the sea...On the shore at San Diego and at False Bay, north of Point Lorna, masses of asphalt are washed ashore by the tidal action. The submarine exudation cannot lie far out”

Antisell offered an explanation as to the occurrence of bitumen. In regards to its occurrence, Antisell (1856, p. 113) wrote that:

“...it appears evident that the beds in which it is found are accidental and not constant. From the outpouring being close to shore, it has happened more frequently that the softer and more recent of the deposits are those in which it is found; but that where it occurs inland it is met with infiltrated in a

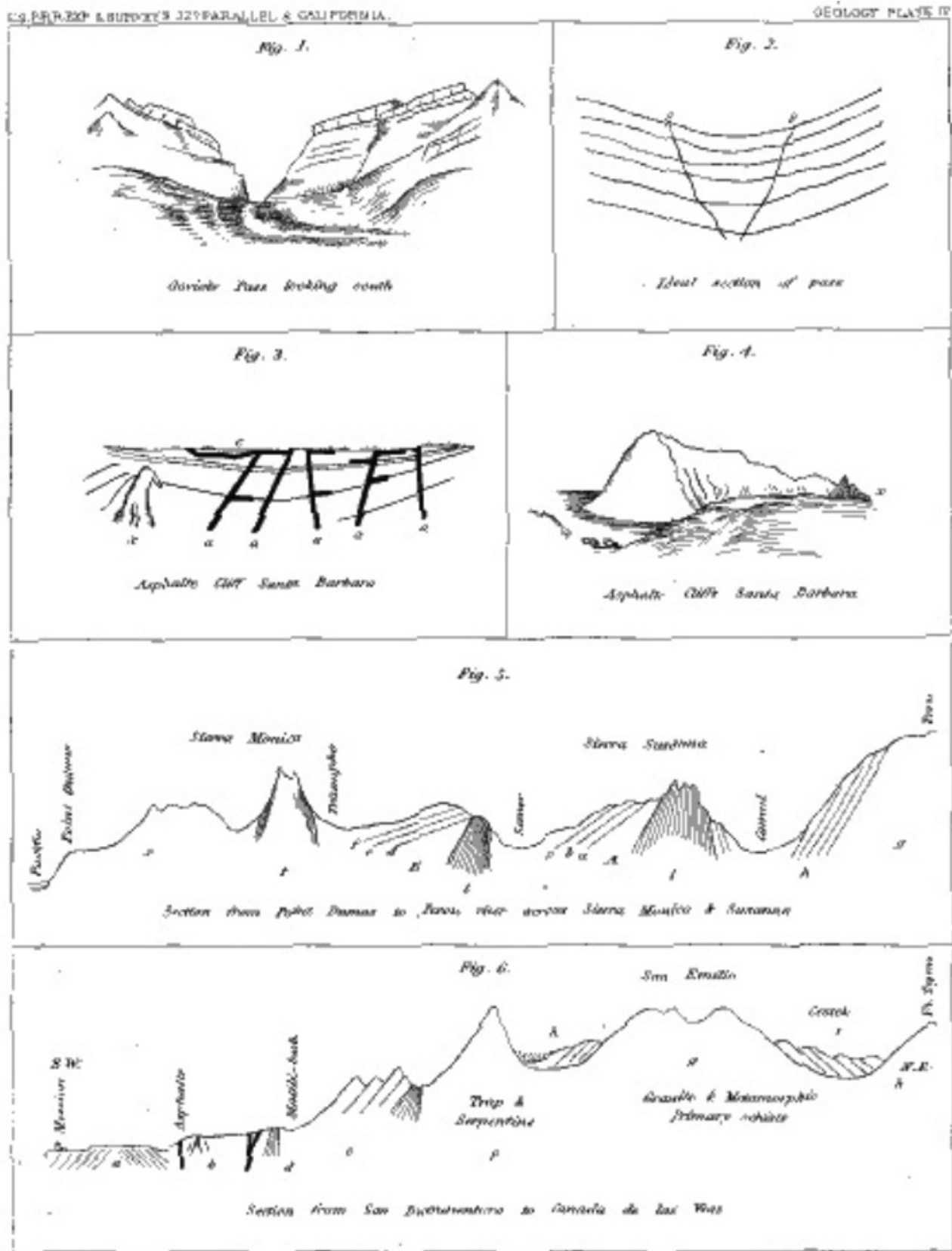


Figure 4. Schematic cross-sections and illustrations from Antisell's report showing Gaviote Pass looking south where strata form a synclinal axis (Fig. 1), Ideal section of the same (Fig. 2), Asphalt cliff on shore near Santa Barbara (Fig. 3), bitumen outflows (Fig. 4), terrace cliffs of asphalt as seen on shore (Fig. 4), cross section from Point Dumas to the granitic mass of San Emilio (Fig. 5), and cross section from San Buenaventura to the Canada de las Uvas.

brownish yellow sandstone, which lies below the softer rocks along shore; in other words, it is sometimes met in the Santa Inez brownish sandstones, at the upheaval of trachyte and amygdaloidal greenstone, and almost in contact with this rock it is at present oozing out; showing that this elevating force is not yet quiescent. At Santa Barbara, east of Point Rincon, and a few other localities, where magnesian talcose rock or scoriaceous lava is the upheaving cause, the action has ceased and the deposit is limited; lastly, it may be remarked that numerous as are the serpentine protrusions among the mountain ranges, constituting some of the most powerful uplifts in the Coast mountains, and occupying a breadth of surface which is not equalled by any other volcanic rock, yet nowhere is bitumen found close to it."

Antisell (1856, p. 114) would go on to speculate:

"It is idle to speculate on the ultimate source of the asphaltum. The generally attributed source, namely, a deposit of fossil vegetable matter, overheated by volcanic rock, does not occur here apparently. The strata through which it escapes are, where observed, almost destitute of vegetable matter; the brown sandstone wholly, and the greenish having a few traces, of fucoids scattered sparingly throughout their structure. The tertiary rocks are in contact with the granite. The sedimentary strata are but a few hundred feet thick before primary rock is met with. There are no palaeozoic strata, no extensive beds of metamorphic shale, no carboniferous strata, to fall back upon to hypothecate its formation. There are no excessive fish remains whose decomposition could be supposed, even by a chemical imagination capable of producing this mineral."

From a paleontological perspective, Timothy A. Conrad, paleontologist with the New York Geological Survey, would serve to analyze and describe the fossils collected by Antisell. As part of Conrad's analysis and report, the Echinoderm *Astrodapsis Antiselli* was named after Antisell (Figure 5; Antisell, 1856, Plate 10, Figures 1 and 2; p.196). Located at San Luis Obispo County it was described as:

"Masses of limestone appear to be composed chiefly of the fragments of this species, and contain

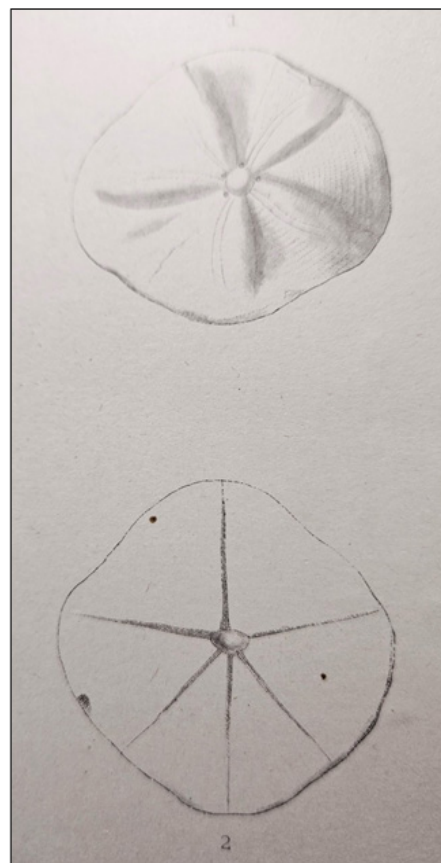


Figure 5. *Astrodapsis Antiselli*, named after Antisell by the paleontologist Timothy A. Conrad (In Antisell, 1856, Plate 10, Figures 1 and 2, p. 196).

many entire, but apparently water-worn specimens. In this respect it resembles a Miocene rock on the Patuxent river, Maryland. Length, 1 ¾ inches."

Of the early reconnaissances (Testa, 2001), Trask and Blake certainly recognized that bitumen was potentially a valuable mineral. Antisell, although he noted the occurrences of major seeps, did not seem to regard them necessarily as having significant economic merit. Roofing, flooring, and paving of roads were the obvious uses. Trask believed that bitumen could also be used for the manufacturing of illuminating gas, a position certainly shared and supported by Blake, whereas, Blake thought their use could extend to fuels. Asphalte Cliff, Santa Barbara (Figure 4a), is where Benjamin Silliman, Jr., claimed to have discovered oceans of oil (Silliman, Jr., 1865; Figure 6). Silliman's report would help spark California's first, albeit brief, oil boom from 1865-1866 (Testa, 2001).

After Antisell's service to the survey and while back on the east coast, he described the manufacturing of illuminating oils from coal notably on the eve of the

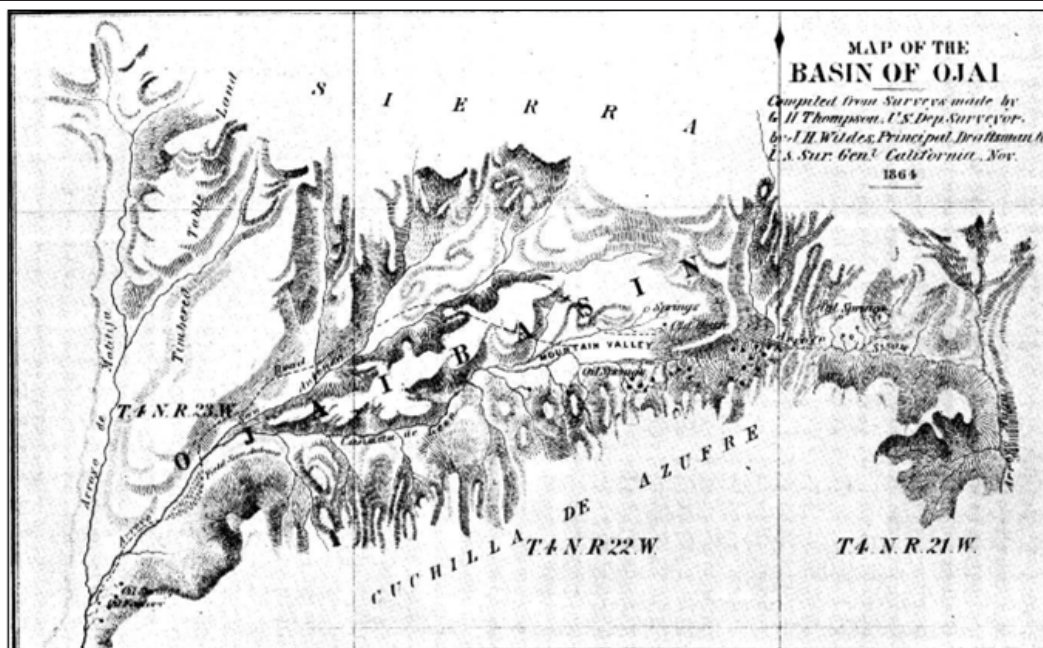


Figure 6. Benjamin Silliman, Jr. map of the Ojai Basin showing relative locations of oil seeps. (Source: courtesy of the Testa Geological Library, Mokelumne Hill, California).

first oil boom in 1859, comparing products generated from coals with those from bitumen (Antisell, 1865).

Moving on from southern California, Antisell under Lt Parke continued their reconnaissance of the southwest. Antisell was the first geologist to give any connected geologic description of southern Arizona, and southwestern and south-central New Mexico. In Arizona, the first notable geologic explorations in this region were associated with the railroad surveys with Jules Marcou working in the north during 1853, and Thomas Antisell along the Gila River during 1855.

Kues (2008) discusses Antisell's work and observations as he proceeded through southwestern and south-central New Mexico. Antisell's work in New Mexico extended from the Arizona border to the Rio Grande and Organ Mountains, and included geologic cross sections and a geologic map of the region he traversed (Figure 8). Many of his observations were detailed and accurate. Antisell was the first to suggest that faulting along the Rio Grande might be responsible for uplifting regions to the west. On the other hand, Antisell was mistaken in identifying large areas between the igneous mountain ranges of southwestern New Mexico as Permian, and in mapping Cretaceous strata in the Mesilla Valley (Kues, 2008). Regardless, Kues (2008) notes that Antisell provided some of the "first real information on the geology of southern New Mexico. Although



Figure 7. Cover page to Antisell's 1859 publication "The Manufacture of Photogenic and Hydro-Carbon Oils from Coal and Other Bituminous Substances Capable of Supplying Burning Fluids."

some important features were overlooked or misinterpreted, he established the general geological framework of this area, with some of the details accurately portrayed." Reconnaissance studies they were, but for this region, not much would be advanced until the first decade of the 20th Century.

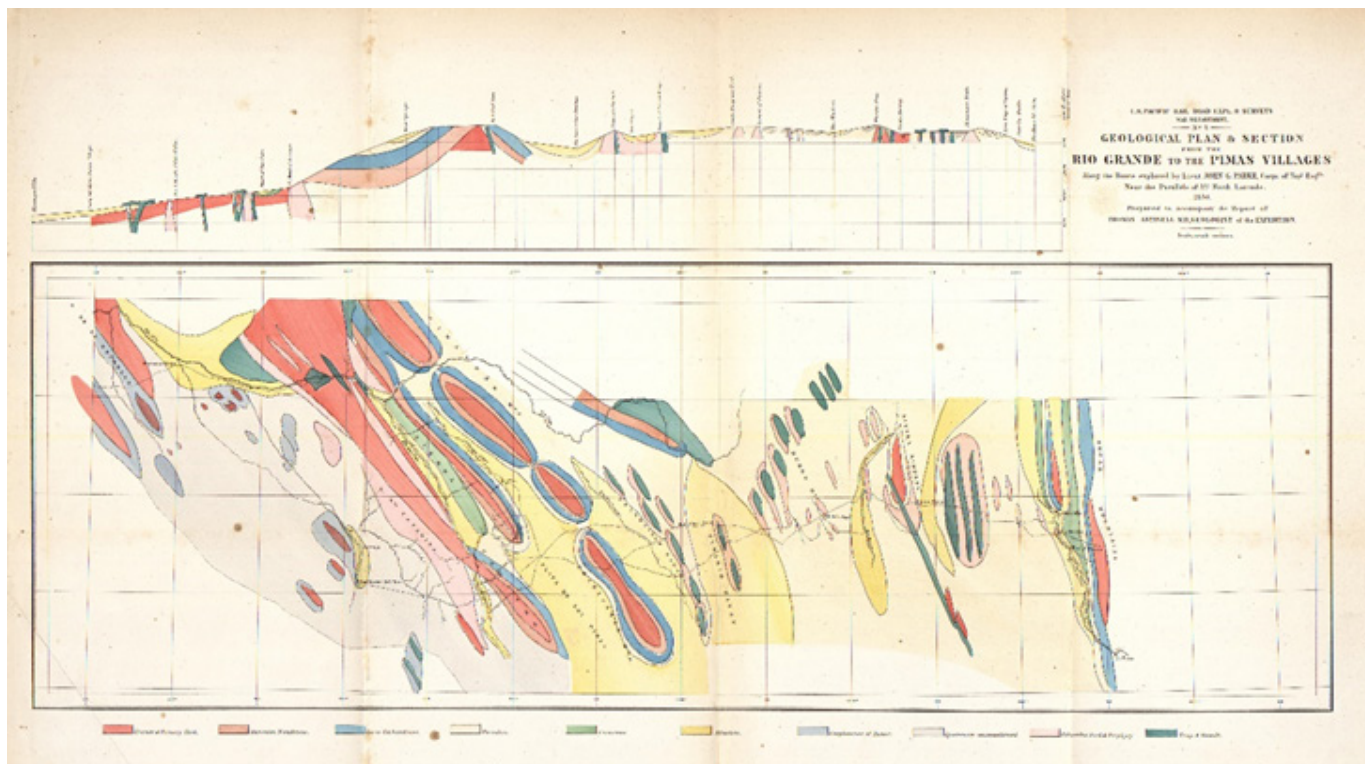


Figure 8. Antisell's (1856) geologic map, titled "Geological Plan & Section, Rio Grande to the Pimas Villages", from the Chiricahua Mountains (southeastern Arizona) in the extreme southwest, across southern New Mexico to the Organ Mountains on the east. Rock types referenced in legend are Granite and primary rock (red); Devonian Sandstone (pink); Lower Carboniferous (deep blue); Permian (pale pink); Cretaceous (green); Alluvium (yellow); Conglomerate of desert (gray blue); Quaternary unconsolidated (light gray blue); Feldspathic rock and porphyry (light pink); and Trap and basalt (blue).

Wartime Surgeon

Following his work with the survey, 1854 saw him as Professor of Chemistry at the Medical College at Woodstock, Vermont. In 1856, several years before the breaking out of the Civil War, Antisell was appointed to the position of principal examiner in the United States Patent Office in sole charge of chemical inventions (Miles, 1968). He resigned and volunteered his services to the Union army as a Brigade Surgeon. In addition to service in the field, he was surgeon in charge at the large Civil War hospital at Harewood (Figure 9; Miles, 1968). William Seaman, a chemist with the Department of Agriculture, commented that Antisell "was noted for his reckless disregard for personal dangers... probably saved the lives of many a poor fellow by the prompt and skillful aid he rendered" (Miles, 1968). Antisell was appointed medical director of the twelfth army corps serving in this capacity from 1861 to 1865, where he would achieve the rank of brevet lieutenant colonel when he was mustered out in October 1865.

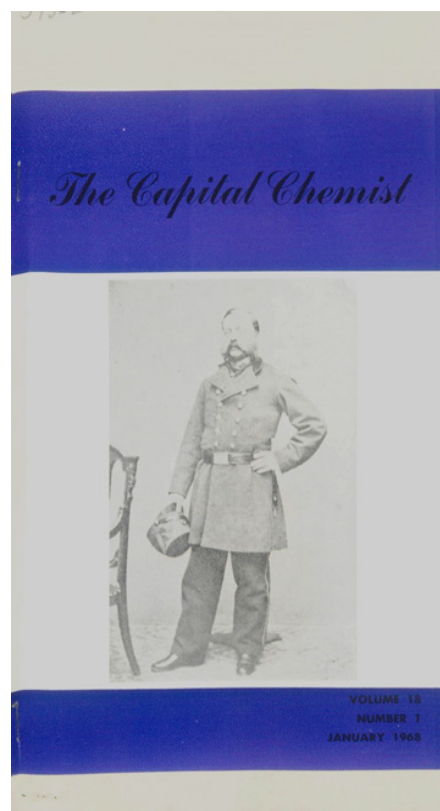


Figure 9. Antisell in his United States Army wartime surgeon uniform (Miles, 1968).

The Capital Chemist

With the war over, Antisell was employed at the three-year old Department of Agriculture. From 1866 to 1871 he served as chief chemist of the United States Department of Agriculture (Figure 10). At this time, the chief chemist acted as chemist for most of the federal government. Antisell was a founding member and the first President of Chemical Society of Washington. While at the department, he analyzed soils and manures, agricultural products, and mineral and metallurgical analyses (Wiley, 1899). He would also investigate cancelling inks for the Post Office Department and building stone for the Treasury Department, and analyzed and estimated fertilizer value of mud from the old Washington Canal (Thomas Antisell Collection, Georgetown University, correspondence by Wyndham Miles, undated).

While at the department, Antisell suggested that the scope of its work be enlarged and embrace the relations of geology to agriculture and include the study of metallurgy (Wiley, 1899). He further suggested that geology had intimate relations to agriculture, and advised the establishment of a geological and mineralogical laboratory and museum to illustrate the economic relations of geology to the

the agriculture of the United States. According to Wiley (1899), Antisell felt that *"Whatever relations of soils to their parent rocks exist would thus be brought out in a prominent and systematic manner."* Wiley (1899) observed from this reference that the first official recommendation for the establishment of a geological survey emanated from the Division of Chemistry of the Department of Agriculture, as well as the suggestion of the study of meteorology and other matters connected directly with agricultural crops.

A Technologist in Japan

In 1871, at the invitation of the Japanese government, Antisell served as what was referred to as a technologist, but essentially a foreign advisor, as part of a government commission to develop the resources of the northern islands of that empire. This venture was like the role William Phipps Blake along with Raphael Pumpelly would serve in 1861. While via ship enroute to Japan, an opportunity offered to become president of the college at Lancaster, Pennsylvania, which Antisell appreciated and would have accepted but had already contracted with the Japanese Government for five years. Antisell served for six years before returning to the United States in 1876.

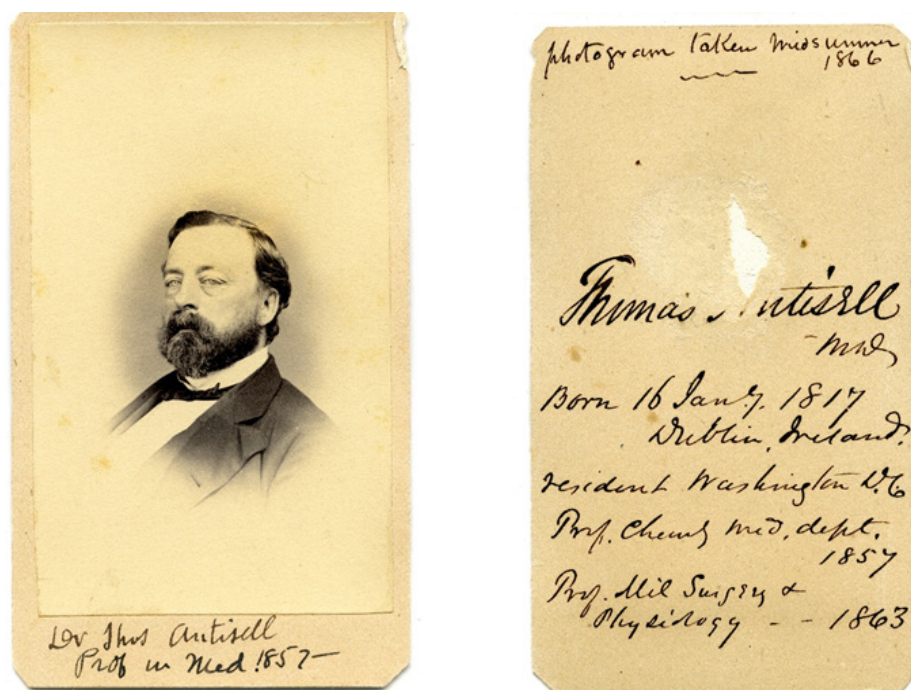


Figure 10. Carte de visite (cdv) image of Dr. Thomas Antisell taken during mid-summer of 1866 while serving as chief chemist with the United States Department of Agriculture (Source: Courtesy of Thomas Antisell Collection at Georgetown University, Washington, D.C.).

The appointment as a technologist to Japan was based on his expertise in chemistry and geology, and would be under the businessman and agriculturist Horace Capron (1804-1885), who had an important role in recruiting American scientists and engineers. After Antisell's resignation over issues with Capron over climate, and the Japanese government over salary, he decided to remain in Tokyo for the summer and autumn to organize the new college, Kaitakushi Karigakko (the Hokkaido Promotion Development Provisional School), noting *"I have induced them to open industrial schools in the Polytechnic plans of Europe and we prepare to have at least three such opened in September—mechanical and civil engineering—mining—and agriculture"*. When it opened in 1872, Antisell became vice president and taught chemistry and geology (Takarabe, 2020).

The tables of meteorological observations, which Antisell believed were *"the first published efforts to arrive at a knowledge of this climate"*, were published as *On Meteorology in Japan* (1872). Maps showing the Japanese Kuroshio Current (also known as the Black Current or, in earlier literature, the Kuro Siwo), and a map of a typhoon which occurred on 25 August 1872, were also included. Antisell concluded *"calling the attention of government to the necessity of establishing stations for meteorological observation along the line of Telegraph from Nagasaki northward"* was needed. He added *"by proper signals"* of the storms in port, great damages could be avoided. Antisell sent this report to Joseph Henry at the Smithsonian Institution. Antisell's Japanese observations would be included in the Smithsonian's meteorological observation project (Takarabe, 2020).

Antisell would serve his remaining time in Japan as a chemist for the Ministry of Finance, where he developed inks for the printing of paper currency. While in Japan he was offered the position of president of the College of Cairo, Egypt, which he declined. In appreciation of his valuable services to Japan he was decorated by the Emperor with the *"Order of the Rising Sun of Meiji"*, making him a nobleman of the empire and the right to carry two swords.

Professor

Upon his return from Japan in 1877 he resumed his pursuit of chemistry, occupying during the subsequent

years of his life various positions of distinction in the line of his special branch of science. Dr. Antisell was a popular teacher. As summarized in Table 2, he began as a lecturer in Dublin and after coming to this country occupied the professorship of chemistry in the colleges at Woodstock, Vermont, Hartsfield and Berkshire, Massachusetts, and afterward in the medical departments of Columbian and Georgetown Universities.

Antisell was elected professor of medical chemistry, toxicology and physiology at the Medical Department of Georgetown in 1857. From 1868 to 1882, he would serve as professor of, military surgery, physiology, hygiene, physiological chemistry, urinary therapeutics and pathology. (Thomas Antisell Collection, Georgetown University). As Emeritus professor from 1882 until his death in 1893 in chemistry and toxicology.

Table 2	
Summary of Dr. Thomas Antisell's Academic Career	
Date	Professorial Position
1845-1848	Professor at Medical School in Dublin; taught botany.
1848-1854	Professor of chemistry at several colleges journeying north from New York where he lived for a few months each year to teach chemistry at Berkshire Medical Institution, Massachusetts, and at the Vermont Medical College.
1854	Address Introductory to the Course of Lectures in the Chemical Department of the Vermont Medical College: delivered before the class of session: Woodstock : Press of the Vermont Temperance Standard, 24 pp.
Georgetown University Medical Department (1858-1883)	
1858-1862	Medical chemistry, toxicology and physiology
1862-1866	Military surgery, physiology and hygiene; made introductory address for the session 1865-1866
1866-1868	Military surgery, physiology and physiological chemistry
1868-1869	Physiology, hygiene, physiological chemistry, urinary therapeutics, and pathology
1869-1870	Chemistry at the University of Maryland Agricultural College

Published Works

Antisell was a member of several scientific societies and in request as a lecturer before scientific institutions. A contributor to scientific literature since his student days, his works cover a wide range of technical subjects, a select listing of his diverse interests and publications is provided in Table 2. Due to his varied interest, his writings are scattered through several specialized publications, thus, a complete listing of his publications has not been compiled. In regards to the general public, his best-known work was his "Home Cyclopedia of Arts and Manufacture" (Table 2; Figure 3).

Table 3 Summary of Select Publications of Dr. Thomas Antisell	
1840	Soils of Ireland, Royal Dublin Society.
1846	Manual of Elementary Geology, Dublin.
1845	A Manual of Agricultural Chemistry with its Application to the Soils of Ireland, Hodges & Smith, Dublin, pp. 83.
1846	Irish Geology in a Series of Chapters, Containing an Outline of the Science of Geology and a Description of the Various Rocks Distributed on the Surface of the Island, with Some Remarks on the Climate, (with James McGlashan), Dublin, pp. viii, 84.
1847	On Sanitary Improvement of the City of Dublin.
1848	The Introductory Address to the Polytechnic Institute Read at the First General Meeting on Wednesday April 12 th , 1848, Sam. Nowlan, Dublin, pp. 15.
1849	Addresses on the Philosophy of Manufactures," delivered at Castle Garden, New York City, during the twenty-second annual fair of American institutes, October.
1852	Home Cyclopedia of the Arts and Manufactures, New York, "Handbook of the Useful Arts," Including Agriculture, Architecture, Domestic Economy, Engineering, Machinery, Manufacture, Mining and Photogenic and Telegraphic Art. Being an Exposition of Their Principles and Practice and a Compend of American and European Invention.
1854	Address Introductory to the Course of Lectures in the Chemical Department of the Vermont Medical College, Delivered Before the Class of Session 1854, Press of Vermont Temperance Standard, Woodstock, pp. 24.
1854 to 1871	On the Value of the Sewerage of the City of Washington," included in the; Introductory and Valedictory Addresses in Medical Colleges at Washington, six in number, from 1854 to 1871.
1856	Geological Reconnaissance of Southern California and Arizona, In United States, Explorations and Surveys, vol. vii, Washington, District of Columbia, 1856.
1859	The Manufacture of Photogenic and Hydro-Carbon Oils, from Coal and Other Bituminous Substances, Capable of Supplying Burning Fluids.

Table 3 (Continued) Summary of Select Publications of Dr. Thomas Antisell	
1859	Orography of the Western Portion of the Continent of North America, Journal of the American Geographical and Statistical Society, vol. 1, no. 2, February 1859, pp. 33-41.
1859	Applications of Chemical Science to Agriculture
1861	Epizootic of Horned Cattle, Transactions of the American Agricultural Association
1861	Valedictory Address to The Graduating Class of the Medical Department of Georgetown College, Session 1860-'61: 15 pp.
1864	Valedictory Delivered at the Annual Commencement of the Medical Department of Georgetown College: March 3, 1864, 16 pp.
1864	Reports on the Sanitary Condition of Washington, Medical Society, District of Columbia
1865	Report of Committee on Medical Education to the American Medical Association; Introductory Address Delivered Before the Medical Department of Georgetown College, Session of 1865-1866.
1866	Prince D. and Antisell, T., Patent Rights among Medical Men: Transactions of the American Medical Association, vol. 17: pp. 521-528.
1866	Report of the Chemist; In <i>Report of the Commissioner of Agriculture: For the Year 1866 (1867)</i> , pp. 45-51.
1867	Report of the Chemist; In <i>Report of the Commissioner of Agriculture: For the Year 1867 (1868)</i> , pp. 31-57.
1867	Cultivation of the Cinchona in the United States; In <i>Report of the Commissioner of Agriculture: For the Year 1866 (1867)</i> , pp. 454-472.
1868	Report of the Chemist; In <i>Report of the Commissioner of Agriculture: For the Year 1868 (1869)</i> , pp. 59-77
1868	Greensand Marl as a Manure; In <i>Monthly Report of the Department of Agriculture for January, 1868</i> , pp. 30-31.
1868	Report on Climatology and Epidemic Diseases of the District of Columbia; part of a report on diseases in " <i>Minutes of the 19th Meeting of the American Medical Association.</i> "
1869	Report of the Chemist; In <i>Report of the Commissioner of Agriculture: For the Year 1869 (1870)</i> , pp. 65-79

Table 3 (Continued) Summary of Select Publications of Dr. Thomas Antisell	
1869	Value of Sewage Deposits of the City of Washington, In <i>Monthly Report of the Department of Agriculture for May and June, 1869</i> , pp. 228-230.
1870	Report of the Chemist; In <i>Report of the Commissioner of Agriculture: For the Year 1870 (1871)</i> , pp. 91-107
1872	On Meteorology in Japan (1872), Northern Studies Collection, Hokkaido University Library https://www2.lib.hokudai.ac.jp/cgi-bin/hoppodb/record.cgi?id=0C0011700000000000
1873	Chapter I – Geology, pp. 17-49; Chapter II – Climate pp. 50-59; In “ <i>History of Sullivan County: Embracing an Account of its Geology, Climate, Aborigines, Early Settlement, Organization; The Formation of its Towns, with Biographical Sketches of Prominent Residents, etc. etc.</i> ”, by James E. Quinlan, G. M. Beebe and W. T. Morgans, Liberty, New York, 1873: pp. 700.
1873	Meteorology of Japan. Dr. Thomas Antisell. 1872” appeared in “ <i>Classified List of Meteorological Publications, and Meteorological Articles in Periodicals, received by the Smithsonian Institution in 1873, and Deposited in the Library of Congress</i> ,” <i>Annual Report of the Smithsonian Institution for the Year 1873</i> (Washington: Smithsonian Institution, 1874), 135. However, Antisell's name did not appear in “Classified Record of Monthly Meteorological Reports Preserved in the Smithsonian Institution” in the same report (from Takarabe, 2020).
1873	On Certain Fossils from San Luis Obispo, <i>Proceedings of the California Academy of Sciences</i> , vol. 1, p. 34.
1878	Biographical Sketch of Dr. Joseph M. Toner -- 1878 -- being a reprint from a memorial volume of the Rocky Mountain Medical Association, printed at Lancaster, Pennsylvania
1883	The Currents of the Pacific Ocean, 1883, <i>Journal of the American Geographical Society of New York</i> , 15, pp. 101–32.

An Accomplished Life

Antisell had relations with the Georgetown University for thirty years and received from that institution the degree of doctor of philosophy in 1881. After his departure from Georgetown University, he once again took up duties at the Patent Office, remaining there until his retirement in 1891, when gradual paralysis forced him to retire (Miles, 1968). He died in Washington on June 14, 1893, and was buried in the Congressional Cemetery.

Miles (1968) relates characterizations of Antisell from colleagues that personally knew him, and provides some insight to the man. One colleague noted “*in official life had the reputation of being reserved and even somewhat brusque, but among his friends he was*

cordial and even warm-hearted, with an abundant supply of wit and humor.” Another noted “*he led a very unobtrusive home-life, rarely appearing in public except when duty called him. He was faithful to duty and conscientious in its performance, unostentatious in manner, and cordial in friendship.*” Antisell was married twice, and at the time of his death he was survived by his two sons and six daughters.

In giving thoughts to the geological work produced, it is important to note that the terrain in which the reconnaissance associated with the various surveys for railroad routes across this country was no picnic. Travel was arduous, not much was known about the country, little time was afforded since the survey had to keep moving and travel from the survey party was

limited, and dysentery among other ailments were commonplace. More time for detailed mapping would come much later in the 19th Century. Though many of the hypotheses and models set forth from the observations made have proven to be erroneous, these early reconnaissances allowed for questions to be asked and theories to be tested. Overall, it remains impressive what was accomplished in so little time when keen observational skills and an open mind were essential. Antisell may not have been a leading geological figure since he devoted much of his time to other professional endeavors, but his contribution to California and the southwest cannot be overlooked. His life as physician, chemist and geologist is well worth remembering and celebrated.

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Acknowledgements

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From the Bakersfield *Californian* website, Mar 18, 2023

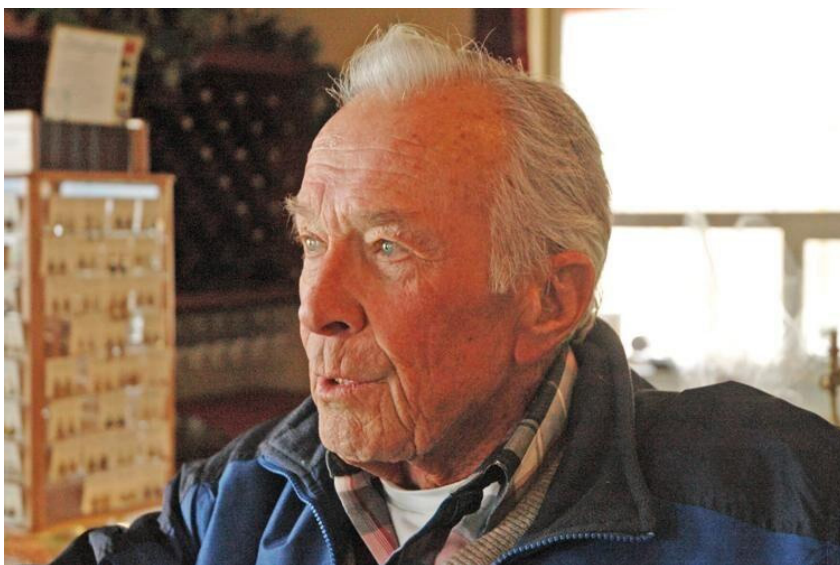
The Quiet Geologist Who Became One of Tehachapi's Founding Wine Producers Dies at 95

By ROBERT PRICE

The Bakersfield *Californian* Mar 18, 2023

Among the many turns in his long, focused life, two catastrophic events in particular helped shape Chuck McCollough's direction.

One was the devastating Tehachapi earthquake of July 21, 1952. McCollough, then about 25, worked for a Kern County oil company as a geological engineer, and if there's one thing geologists cannot resist, it's the opportunity to peer down a fresh scar upon the Earth's face. McCollough and a colleague drove up the mountain from Bakersfield to investigate the Cummings Valley, where the Tehachapi Women's Prison had been rendered uninhabitable, and he found himself enthralled by the region's beauty. That thrall would last a lifetime.



The other noteworthy moment in history was the Triassic Period, which began after Earth's worst-ever extinction event devastated life on this planet roughly 250 million years ago. That, too, enthralled McCollough.

McCollough died March 4 at the age of 95, but his life, for purposes of today's discussion, began at 80, when he helped lay the foundation for what would become the Tehachapi Mountains American Viticultural Area, or government-sanctioned wine-producing region.

At 80, McCollough purchased the prominently positioned property at the elevated three-way intersection of Highway 202, Cummings Valley Road and Bear Valley Road that would become the Triassic Legacy Vineyards, named after nearby hills to the north that date to the Triassic Period. McCollough knew his earth science, but he didn't know wine especially well and he definitely didn't know the hospitality business, but he was honest and earnest and willing to learn.

"When you told him how to do something, he listened and did it just the way you told him," said Bob Souza, who along with wife Patty opened the Cummings Valley's first winery, Tehachapi Wine & Cattle Co., two years before McCollough got started.

"He was very analytical," Souza said. "Not a real social animal, but not a recluse either."

The fish-out-of-water nature of his venture into winemaking — McCollough was as reserved as Souza is gregarious — was, for many visitors to his distinctive hilltop tasting room, endearing.

“Chuck was lovable because he was so sincere and so hardworking,” said Melissa Fontana, a Triassic employee who remained his friend years after he sold the business.

Among McCollough’s other passions, according to Fontana: He was the co-founder and driving force behind the Cummings Valley Protective Association, a group dedicated to preserving the area’s agricultural character; and the energy behind the Yellow Starthistle Task Force, which successfully managed to control and minimize the rampant invasive weed. McCollough was known to stop his car, pull over, get out and yank out sprigs of starthistle he’d spotted along the road’s shoulder. Such was his dedication to the beauty and agricultural health of the area.

McCollough was raised in a converted chicken coop in Yucaipa, San Bernardino County, without electricity or indoor plumbing. He enlisted in the Navy immediately after World War II and served two years, then obtained a degree in geology from the Colorado School of Mines. He married, raised a family and earned a good living.

McCollough and wife Lorraine bought property in Stallion Springs in 1985, envisioning simply a weekend retreat, but they moved there full time in 1986. McCollough retired from Occidental Petroleum in 1989 after 40 years in the oil business.

Lorraine died from cancer in 2000.

We pick up the story as McCollough — still able to fit into his old Navy uniform — is approaching his eighth decade of life.

As he told Jon Hammond of the Tehachapi News, McCollough learned that some were talking about the possibility of building a gas station and convenience store on the prominent little hill where the Cummings Valley opens out toward the west. McCollough advocated for something better for that property, whose mountain setting reminded him of Yucaipa, but when no one stepped forward, he bought the land himself in 2007.

In 2008, with the help and support of friends and community volunteers, including Bob Souza, he planted 6,310 grapevines on 7 acres in a single day, and Triassic Vineyards was born. Work on a tasting room was completed in 2009, and a grand opening was held in December 2010.

He sold the property to Jim and Sally Arnold in 2013, but remained a frequent visitor.

Today the Tehachapi Mountain AVA has six wineries, all members of the Tehachapi Mountains Wine Growers Association, whose president — replacing Jim Arnold of Triassic — is Mike Van Atta, who, with wife Beth Hamilton, purchased the 60-acre Tehachapi Wine & Cattle Co. property from the Souzas about five years ago.

“We’ve become an award-winning wine-growing area because of the work of people like the Souzas and Chuck McCollough,” said Van Atta. “Chuck built a beautiful building there on Highway 202 that’s kind of the entrance to the Tehachapi wine country.”

This summer, Tehachapi Wine & Cattle will celebrate the 20th anniversary of Tehachapi’s first planting of wine grapes. The Souzas, who still live in Tehachapi, will be there. Chuck McCollough, who helped them plant that first vineyard, will not — but he’ll be remembered.

“Chuck was my model, a little guy with a big footprint,” Souza said. “His legacy is tall.”



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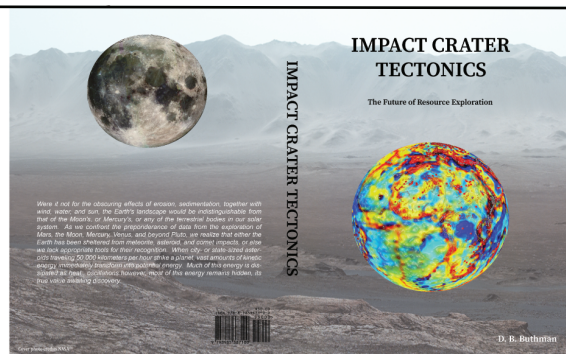
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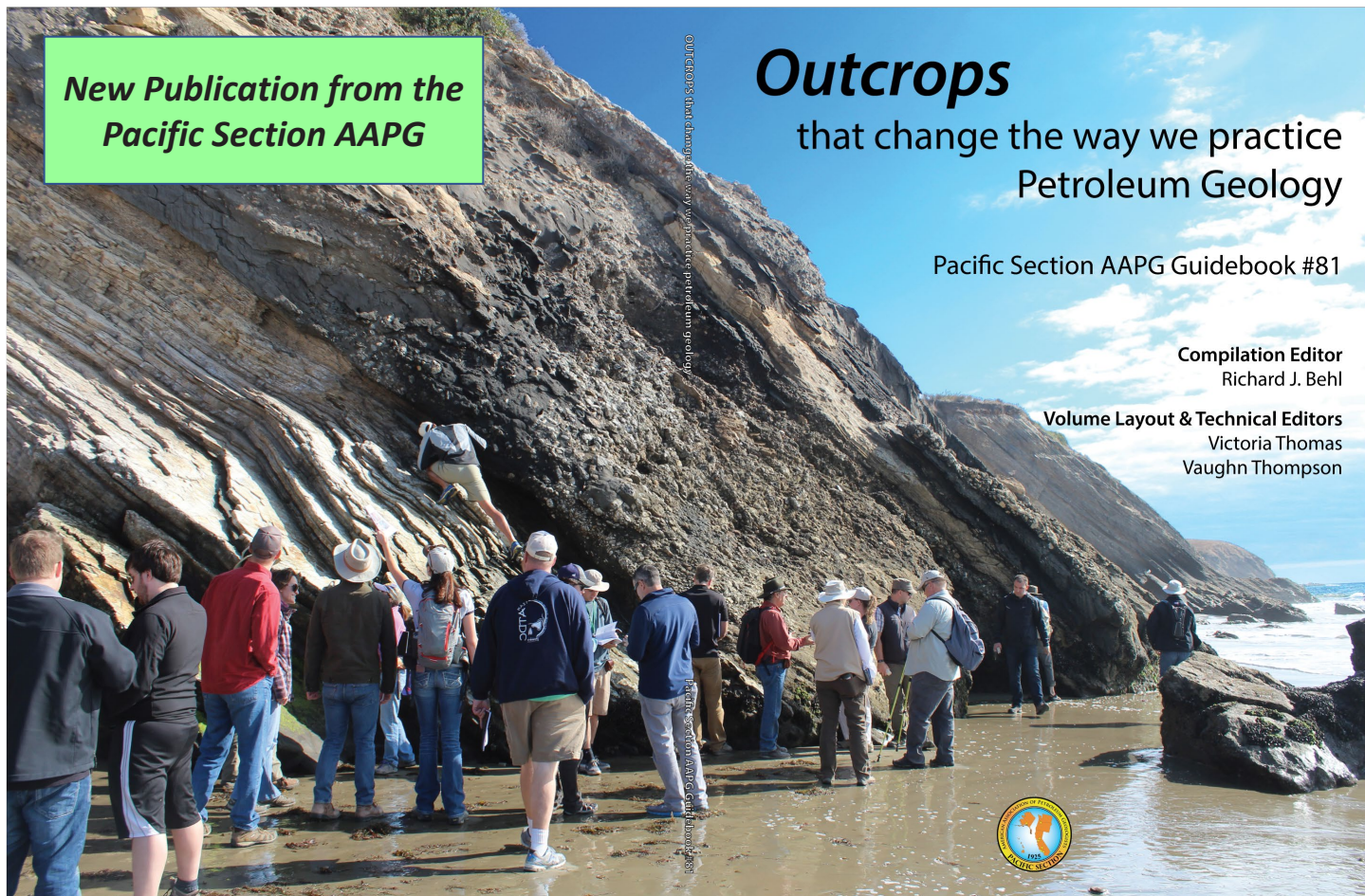
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Member Society News

Alaska Geological Society
www.alaskageology.org

P. O. Box 101288
Anchorage, AK 99510

Monthly meetings are held on the last Thursday of the month. Most meetings are hybrids, using Google Meet, and in person at the BP Energy Center. Meeting time is 11:45.

April will have the annual Technical Conference - see information below. Check the AGS website for details on future monthly meetings.

President:	Sarah Frey	sking11311@gmail.com
President-Elect:	OPEN	
Vice-President:	Ben Rickards	rickards.ben@gmail.com
Secretary:	Heather Beat	heather.beat@alaska.gov
Treasurer:	Corey Ramstad	cramstad@hilcorp.com
Past-President:	Laura Gregersen	laura.gregersen@alaska.gov

Alaska Geological Society Members and Friends – Welcome!

We are looking forward to this year's 2023 AGS Technical Conference. The conference will be held in Anchorage on University of Alaska Anchorage's campus. Like last year, the conference will be a hybrid format with online and in person options. We highly encourage in person attendance if possible.

AGS is a strong supporter of the University of Alaska geoscience programs in Fairbanks and Anchorage. We are a non-profit organization and offer support to university students through our strong scholarship programs and our continued professional and student attended technical conferences and monthly luncheons. We ask you to help us continue this legacy.

2023 Conference Theme: Responsible Resource Independence

Alaska is rich in natural resources, from precious metals to hydrocarbons. We want to highlight the research and people working toward sustainable, responsible development of these resources in our State.

Saturday, April 22, 2023
UAA ConocoPhillips Integrated Science Building
8:30 am - TBD

Keynote Speakers: Colby VanDenburg, Armstrong Oil and Gas, Vice President of Geology
Doug Kreiner, US Geological Survey, Critical Minerals

Abstracts are due April 7. Please visit our website at [ALASKA GEOLOGICAL SOCIETY - Home \(alaskageology.org\)](http://ALASKA.GEOLOGICAL.SOCIETY-Home.alaskageology.org) to register and submit an abstract.

(Continued on next page)

Coast Geological Society
<http://www.psaapg.info/cgs/index.html>

P. O. Box 3055
 Ventura, CA 93006

In-person meetings are the third Tuesday of the month at the Poinsettia Pavilion, 3451 Foothill Rd, Ventura, CA 93003

Tuesday, April 18, 2023: Student Scholarship Night, with student posters

Tuesday May 16, 2023: Mark Trout, check the website for the updated talk title

President:	John Williams	CoastGeologicalPresident@gmail.com
Past-President:	Renee Richards	
Vice President:	Jordana Rataizer	CoastGeologicalVicePresident@gmail.com
Secretary:	Justin Brochert	CoastGeologicalSecretary@gmail.com
Treasurer:	David Arellano	CoastGeologicalTreasurer@gmail.com
Membership chair:	John Abeid	CoastGeologicalMembership@gmail.com
Webmaster/Tech Support:	Eric Heaton	CoastGeologicalWebmaster@gmail.com

See the announcement below on the 75th anniversary logo design.

75th Anniversary Logo Design
Coast Geological Society Members,

Congratulations to all of us! This is the 75 year anniversary of Coast Geological Society here in Ventura, since it's start in 1948.

In commemoration to the occasion, we are looking for a 75 year logo design. Anyone is invited to submit a logo design to CGS and are more than welcome to submit multiple designs. First, Second, and Third Place winners will receive Membership and dinner rewards. We ask that you please **submit your CGS logo design to jtwrockoil@gmail.com by March 31, 2023.**

The Selection team will announce the logo winner at our April 18, 2023 meeting. The logo will be used on our web site, awards, letter head, T-shirts, sweat shirts, stickers, etc...

Los Angeles Basin Geological Society
www.labgs.org

Luncheon meetings have a new venue: Signal Hill Petroleum located at 2633 Cherry Ave, Signal Hill, CA (562-595-6440, Brady Barto, ext. 5233). Meetings are on the fourth Thursday of the month, from 11:30 am to 1 pm.

Check the website for information on the next talk.

President:	Dan Steward	daniel@ironhorseenergy.com
Vice President & Programs	Rick Behl	richard.behl@csulb.edu
Treasurer:	Francine Cason	fcason5@gmail.com
Secretary:	Joseph Landeros	landerosjd@gmail.com
Scholarships:	Karla Tucker	ktr2@aol.com
Webmaster	Joseph Landeros	landerosjd@gmail.com

Northern California Geological Society
www.ncgeolsoc.org

803 Orion #2
Hercules, CA 94547-1938

Meetings are at the Orinda Masonic Hall and online using Zoom on the fourth Wednesday of the month. Talks are 7 pm to 8:30 pm (social half-hour at 6:30 pm)

Wednesday April 26, 2023: Dr. Larry Toy, The James Webb Space Telescope - A new look at the Universe

Wednesday May 31, 2023: Dinner Meeting – 6:00 pm; Rob Gailey, Consulting Hydrogeologist
Next Steps in Managing Groundwater Resources in CA

President:	Noelle Schoellkopf	NoellePrince @ sbcglobal.net
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Scholarships:	Phil Garbutt	plgarbutt@comcast.net
Program Director:	Jim O'Brient	j.obrient @ comcast.net
Website Editor:	Andrew Alden	geology @ andrewalden.com

Northwest Energy Association

P. O. Box 6679
Portland, OR 97228

Contact: Jim Jackson or
John Armentrout

No activities are planned at this time. There is no active website. Check directly with the officers for more information.

President	Chris May	c.law.may@gmail.com
Vice-President	Steve Pappajohn	
Treasurer	Barb Portwood	bbportwood@gmail.com
Co-Treasurer	Jim Jackson	jackson.js@comcast.net

Sacramento Petroleum Association

P. O. Box 1844
Folsom, CA 95630

Contact: Pam Ceccarelli
916-439-0400

The Sacramento Petroleum Association is shutting down. The last meeting will be on April 19, 2023. See page 8 for more information on attending the final meeting.

President:	Jerry Reedy	JWR5532@aol.com
Vice-President:	Scott Hector	Scott.Hector@gmail.com
Secretary	Derek Jones	djones@gasbiz.com
Editor/Treasurer	Pam Ceccarelli	pc626@comcast.net

(Continued on next page)

San Joaquin Geological Society
www.sanjoaquingeologicalsociety.org

P. O. Box 1056
 Bakersfield, CA 93302

DINNER MEETINGS:

SJGS meetings are on the second Tuesday of the month at the American Legion Hall, 2020 H St Bakersfield, CA.

Tuesday, April 11th – Kathleen Marsaglia from CSUN

Tuesday, May 9th – Mara Brady from CSUF

We are still seeking sponsorship for all of these dinner meetings. If you would like to sponsor a meeting, please contact Jennifer Prosser at jprosser@envirotechteam.com.


EVENTS:

Upcoming events include a wine trip to Paso Robles and a trip to Sharktooth Hill.

Event details will be posted on the website, and SJGS members will be notified by email.


President:	Jennifer Prosser	jprosser@envirotechteam.com
Past President:	Jeff Kimber	Jeff.kimber@conservation.ca.gov
President-Elect:	Lisa Alpert	LAAlpert@aeraenergy.com
Vice-President:	Tom Howard	
Secretary:	Kenton Crabtree	
Treasurer:	Sara Maloney	
Webmaster:	Ivan Aburto	Ivan.Aburto@crc.com
HOD Delegate	Cynthia Huggins	

The Geology Club BBQ is back for Spring 2023! Please share this information with anyone you think might be interested.



13TH ANNUAL GEOLOGY CLUB BBQ FUNDRAISER

Saturday April 15, 2023
 Lengthwise Brewery Company
 7700 District Blvd
 6:00 pm - 10:00 pm



Students: \$25
General: \$40

Payment can be paid to Monica Hinson or Tyler Garza. You may contact us for more information at mhinson4@csub.edu or tgaza3@csub.edu